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09/910,147	07/20/2001	Roger P. Holmstrom	PB 00 0027	9856

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EXAMINER

LI, SHI K

ART UNIT PAPER NUMBER

2633

DATE MAILED: 02/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/910,147

Applicant(s)

HOLMSTROM ET AL.

Examiner

Shi K. Li

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 November 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-42 is/are pending in the application.
- 4a) Of the above claim(s) 17-27 and 35-39 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16, 28-34 and 40-42 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election of Species I with claims 1-16, 28-34 and 40-42 in the reply filed on 2 November 2004 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)). Claims 17-27 and 35-39 are withdrawn from examination as they are directed to non-elected species. Claims 17-27 and 35-39 are withdrawn from examination as being directed to non-elected species. The election requirement is made final.

Drawings

2. FIG. 2, FIG. 3, FIG. 4A, FIG. 5A and FIG. 8 are objected to under 37 CFR 1.84(o) because there are no descriptive legends for the boxes (e.g., the box 260 of FIG. 2). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claim 3 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The specification discloses in FIG.

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6 a combination of detector and focusing lens. However, the specification does not teach a detector that is a focusing lens.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-2, 4-5, 8-10, 14, 16, 28-31 and 34 are rejected under 35 U.S.C. 102(e) as being anticipated by Laor (U.S. Patent 6,320,993 B1).

Regarding claims 1 and 28, Laor discloses in FIG. 35 a beam alignment system comprising a signal detector 830 in a path of beam 804, and mirrors (signal director of instant claim) 814 and 816. Laor teaches in col. 23, lines 46-48 that beam 804 comprises communication signal 802 and control signal 830 having different wavelengths. Laor does not show a signal alignment unit in FIG. 35. However, Laor discloses in FIG. 19 general control arrangement comprising processor 104 for controlling signal director means (see col. 23, line 41-col. 24, line 2).

Regarding claims 2, 4 and 30, Laor teaches in FIG. 53 and col. 18, line 52-col. 19, line 4 to use lenses to collimate the beam and focus beam onto optical cable.

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Regarding claim 5, since the signal detector is attached to the optical fiber as illustrated in FIG. 32 and FIG. 33, when the alignment signal is aligned on the signal detector, the traffic signal is aligned with core 608 of FIG. 32 or FIG. 33.

Regarding claims 8, 31 and 34, Laor teaches in col. 19, lines 30-32 to use MEM mirror for signal director.

Regarding claim 9, Laor teaches in col. 11, lines 44-45 to use infrared radiation having wavelength greater than 1310 nm for the communication signal, and in col. 11, lines 63 to use wavelength range above 1200 nm for the communication signal.

Regarding claim 10, Laor teaches in col. 21, lines 46 to use silicon for the detector.

Regarding claims 14, 16 and 29, Laor teaches in FIG. 36 a signal transmitter 920 for generating control signal 906, which is equivalent to signal 806 of FIG. 35, and coupler 922 for combining the control signal with traffic signal.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Laor (U.S. Patent 6,320,993 B1).

Laor has been discussed above in regard to claims 1-2, 4-5, 8-10, 14, 16, 28-31 and 34.

The difference between Laor and the claimed invention is that Laor does not teach to combine the detector with a focusing lens. However, Laor teaches in FIG. 53 using lens for focusing light

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beam onto the core of optical fiber 1308. Since Laor also teaches to fix the detector to the optical fiber for accurate alignment, one of ordinary skill in the art would have been motivated to also attach a lens to the detector so that the relative position of lens, detector and optical fiber is fixed and aligned. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to attach a lens to the detector for focusing light beam, as suggested by FIG. 53 and FIG. 32, in the alignment system of FIG. 35 because the approach fixes the relative position of lens, detector and optical fiber and improves the accuracy of alignment.

9. Claims 6-7, 32 and 40-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Laor (U.S. Patent 6,320,993 B1) in view of Burroughs et al. (U.S. Patent 6,580,846 B1).

Laor has been discussed above in regard to claims 1-2, 4-5, 8-10, 14, 16, 28-31 and 34. Regarding claims 6-7 and 32, the difference between Laor and the claimed invention is that Laor does not teach to use a quadrature detector for detector 830 of FIG. 35. Burroughs et al. discusses alignment of optical cross-connect. In particular, Burroughs et al. teaches in FIGs. 12A and 12B a quadrature detector 1222. Burroughs et al. teaches in col. 9, lines 33-49 that a quadrature detector is able to indicate direction of misalignment so that a controller can issue appropriate movement of signal director for correcting alignment error. One of ordinary skill in the art would have been motivated to combine the teaching of Burroughs et al. with the cross-connect alignment system of Laor to use quadrature detector for the signal detector because quadrature detector is able to indicate direction of misalignment so that a controller can issue appropriate movement of signal director for correcting alignment error. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use quadrature detector, as taught by Burroughs et al., in the cross-connect alignment system of Laor.

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Regarding claim 40, Burroughs et al. teaches in col. 10, lines 13-22 to use servo beam when signal beam is not present. Burroughs et al. then teaches in col. 10, line 56 to calibrate the cross-connect to obtain a reference location. One of ordinary skill in the art would have been motivated to combine the teaching of Burroughs et al. with the cross-connect alignment system of Laor to use the servo beam without the signal beam for calibrating to obtain reference location before the cross-connect is used for real traffic signal because it provides a sanity check for the alignment system and reduces alignment time for real operation. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the servo beam without the signal beam for calibrating to obtain reference location before the cross-connect is used for real traffic signal, as taught by Burroughs et al., in the cross-connect alignment system of Laor because it provides a sanity check for the alignment system and reduces alignment time for real operation.

Regarding claim 41, Laor teaches in col. 8, line 57-col.9, line 44 to encode target identification in control signal wavelength for connection verification.

10. Claims 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Laor (U.S. Patent 6,320,993 B1) in view of Murray et al. (U.S. Patent 6,829,442 B2).

Laor has been discussed above in regard to claims 1-2, 4-5, 8-10, 14, 16, 28-31 and 34. The difference between Laor and the claimed invention is that Laor does not teach to use InP, GaP or GaAs as material for the detector. Murray et al. teaches in col. 9, lines 10-13 that Si, InP, GaAs or GaP are preferable material for a p-i-n photodetector. These materials have different cut-off wavelengths (see col. 6, lines 15-17). One of ordinary skill in the art would have been motivated to combine the teaching of Murray et al. with the cross-connect alignment system of

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Laor and replace Si with InP, GaP or GaAs as material for the photodetector because they offer difference cut-off wavelengths and are suitable for alignment signal of different wavelengths.

Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace Si with InP, GaP or GaAs as material for the photodetector, as taught by Murray et al., in the cross-connect alignment system of Laor because these materials offer difference cut-off wavelengths and are suitable for alignment signal of different wavelengths.

11. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Laor (U.S. Patent 6,320,993 B1) in view of Lee et al. (U.S. Patent 6,559,984 B1).

Laor has been discussed above in regard to claims 1-2, 4-5, 8-10, 14, 16, 28-31 and 34. The difference between Laor and the claimed invention is that Laor does not teach to use pilot tones for encoding. Lee et al. teaches in FIG. 6 and col. 5, line 62-col. 6, line 4 to use pilot tones of various frequencies for tagging signals. One of ordinary skill in the art would have been motivated to combine the teaching of Lee et al. with the cross-connect alignment system of Laor to use pilot tones for tagging signals because pilot tones can be easily generated and detected. This simplifies the cross-connect design. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use pilot tones for tagging signals, as taught by Lee et al., in the cross-connect alignment system of Laor because pilot tones can be easily generated and detected.

12. Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Laor (U.S. Patent 6,320,993 B1) in view of Burroughs et al. (U.S. Patent 6,580,846 B1) and Goodwill (U.S. Patent 6,775,480 B1).

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Laor has been discussed above in regard to claims 1-2, 4-5, 8-10, 14, 16, 28-31 and 34. The difference between Laor and the claimed invention is that Laor does not teach to compare intensity measurement with previous intensity measurement. Burroughs et al. teaches in col. 10, lines 13-22 to use servo beam when signal beam is not present. Burroughs et al. then teaches in col. 10, line 56 to calibrate the cross-connect to obtain a reference location. Goodwill teaches in col. 11 lines 13-15 to compare measurement results with predetermined threshold values for alignment. One of ordinary skill in the art would have been motivated to combine the teaching of Burroughs et al. and Goodwill with the cross-connect alignment system of Laor to compare measurement results with previous calibrated values because this approach quickly gives degree of misalignment and reduce alignment time. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to compare intensity measurement with previous intensity measurement, as taught by Burroughs et al. and Goodwill, in the cross-connect alignment system of Laor because this approach quickly gives degree of misalignment and reduce alignment time.

13. Claim 42 is rejected under 35 U.S.C. 103(a) as being unpatentable over Laor and Burroughs et al. as applied to claims 6-7, 32 and 40-41 above, and further in view of Lee et al. (U.S. Patent 6,559,984 B1).

Laor and Burroughs et al. have been discussed above in regard to claims 6-7, 32 and 40-41. The difference between Laor and Burroughs et al. and the claimed invention is that Laor and Burroughs et al. do not teach to use pilot tones for encoding. Lee et al. teaches in FIG. 6 and col. 5, line 62-col. 6, line 4 to use pilot tones of various frequencies for tagging signals. One of ordinary skill in the art would have been motivated to combine the teaching of Lee et al. with the

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modified cross-connect alignment system of Laor and Burroughs et al. to use pilot tones for tagging signals because pilot tones can be easily generated and detected. This simplifies the cross-connect design. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use pilot tones for tagging signals, as taught by Lee et al., in the modified cross-connect alignment system of Laor and Burroughs et al. because pilot tones can be easily generated and detected.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shi K. Li whose telephone number is 571 272-3031. The examiner can normally be reached on Monday-Friday (8:30 a.m. - 5:00 p.m.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 571 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

skl
18 February 2005

Shi K. Li
Shi K. Li
Patent Examiner